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ABSTRACT

A study was conducted to examine the contributions to the determination of individuals' orientation to change made by such factors as the individuals' demographic, social structural, personality, and cognitive characteristics. Data were collected in a field sample of 159 adult residents of New Athens, Illinois, a town of 2,000 inhabitants near which the federal government had announced plans to build the nations' largest coal gasification plant, with predicted economic and social changes. The questionnaire used contained forced choice and open-ended items on such factors as age, education, occupation, income, social structural outlook, level of fatalism, communication behavior (mass and interpersonal), and degree of importance attached to the object of change. Results indicated that mass media exposure and interpersonal communication have predominant impact on the process of individual modernity; that as a personality characteristic, fatalism plays an important role in the process of individual modernity--although its impact is mediated by a number of intervening variables, including group membership; and that in a rural community in a highly-developed country, the variables which determine the individual's level of modernity are the same as those which account for such modernity in less-developed countries. (DF)

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COMMUNICATION AND OTHER CRITICAL PREDICTORS OF ORIENTATION TO CHANGE: A MULTIVARIATE ANALYSIS

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COMMUNICATION AND OTHER CRITICAL PREDICTORS OF
ORIENTATION TO CHANGE: A MULTIVARIATE ANALYSIS

In several studies of modernization or social change, it has been repeatedly found that the individual who can easily see himself in the role of another, who readily seeks and gathers information to enable him make rational decisions, who is open to new ideas, and whose belief system is so flexible as to permit him to anticipate and welcome the prospects of change, is the one best suited to promote change and also the one least disorganized by the process of social change. Lerner (1958), Rogers (1969), Gompertz (1960), Whiting (1971) and many others have called this kind of person an "empathic individual," while Smith and Inkeles (1966), Inkeles (1969), Inkeles and Smith (1974), and Armer and Schnaiberg (1973) conceive of the syndrome which permeates the life of this type of person as "individual modernity."

What role does communication play in nurturing this empathic orientation? How about the demographic, social-structural, personality, and cognitive characteristics of the individual? To what extent are these also factors to be reckoned with in understanding this empathic orientation?

The purpose of this study is to examine the contributions which these factors can make to the determination of one aspect of individual modernity--Orientation to Change. The general postulate here is that orientation to change is fashioned out of a network of interrelationships among a person's demographic characteristics, such as age, education, occupation, and income; his social-structural outlook, such as group membership; his level of fatalism; his communication behavior, both mass and interpersonal; and the degree of importance which he attaches to the object of change.

This is not strictly an original postulate, for Rogers (1969) has written that "questions about the development and modernization of traditional peoples

lie embedded in the interrelationships of a series of conceptual variables such as literacy, innovativeness, interpersonal and mass media communication, empathy, achievement motivation, cosmopoliteness, and fatalism" (p. 2). However, while most previous studies of individual modernity have concentrated on peoples in the less developed countries, the present one deals with people in an advanced nation--the United States. Also, whereas most previous studies have concentrated on isolating the variables constituting the individual modernity syndrome, the present study attempts to examine the interrelationships of such variables in a system of causal paths within the framework of Rotter's (1954, 1966) social learning theory of personality.

That theory states that behavior or behavior potential is a function of a personality characteristic called expectancy or locus of control, reinforcement value, and the psychological situation in which the individual happens to find himself at the particular moment that behavior occurs. Under the theory, personality is modifiable by experience, and behavior itself is learned and goal-directed. Also, as important to the individual as reinforcement value is past history of reinforcement, and Rotter has conceptualized behavior potential as including a wide range of overt events as well as potentialities and predispositions. According to him:

> Behavior may be that which is directly observed but also that which is indirect or implicit. This notion includes a broad spectrum of possibilities--swearing, running, crying, fighting, smiling, choosing, and so on, are all included. These are all observable behaviors, but implicit behaviors that can only be measured indirectly, such as rationalizing, repressing, considering alternatives, planning, and reclassifying, would also be included (Rotter, Chance, and Phares, 1972, p. 12).

Thus, while Rotter (1972) defines "social attitude" as "a set of functionally related beliefs about a class of people or socially determined events" (p. 337), he argues that a social attitude could also be conceived of as a form of behavior in terms of a person's response to questionnaire items (pp. 340-41). In this respect, one could conceptualize orientation

to change here as an attitudinal construct, just as Inkeles and Smith (1974) have defined "readiness for social change" as attitude toward modernization; and in social learning theory terms, this attitudinal construct qualifies as a behavior potential. Locus of control is the belief that the reinforcement which one receives is a result either of one's own effort (internal control) or of the influence of chance, luck, fate, or powerful others (external control). Reinforcement value is the preference for a particular reinforcement to occur if the possibilities of occurrence of all alternatives were equal; and psychological situation is the situation as defined from the individial's own perspective.

As in the case of behavior potential, the other variables in this study could likewise be conceived of in terms of their social learning theory counterparts as follows: fatalism (locus of control), demographic characteristics and group membership (psychological situations), communication exposure--mass and interpersonal (past and current history of reinforcement), and perceived importance (reinforcement value).

In his study of factors conducive to economic development, McClelland (1961) has reported that the psychological orientation he calls "the achievement syndrome" was the single most important human factor accounting for rapid economic and social development. Lerner (1958) contends that empathy or the psychological disposition he calls "psychic mobility" is essentially responsible for the transformation of traditional societies to modern and for the sustenance of the modernization process. And after their study of individual modernity in six less-developed countries, Inkeles and Smith (1974) concluded that:

> In the conditions of the contemporary world, the qualities of individual modernity are not a luxury, they are a necessity. . . . Diffusion through the population of the qualities of the modern man is not incidental to the process of social development, it is the essence of national development itself (p. 316).

Underscoring the importance of orientation to change as these researchers have done of course implies no value judgment as to whether all forms of change are "good," and so are to be welcomed. The fact remains, however, that the individual with this empathic orientation is in a better position to make any value judgment that may be necessary than is a person without such orientation. And since change seems to be an on-going process in any society, both developed and less-developed alike (Moore, 1963; Black, 1966; Levy, 1969), the study of the process of individual modernity and the role which communication plays in that process is of interest to communication researchers. In particular, understanding how the key variables involved in the process influence and are influenced by one another in their structural relationships is of special interest.

Lerner (1958) has reported that increasing media exposure tends to raise participation in all other sectors of the social system. "In accelerating the spread of empathy," he states, "it (media exposure) also diffuses those other modern demands to which participant institutions have responded: in the consumer's economy via cash and credit, in the public forum via opinion, in the representative polity via voting" (p. 62). In his factor analysis of data from Brazil, Canada, Colombia, Kenya, Pakistan, Puerto Rico, and the United States, Rogers (1969) found that age, family size, radio exposure, attitude toward innovations, and negative cohesion with the village, were the critical determinants of orientation to change.

Several researchers (Troldahl, 1965; Greenberg and Kumata, 1968; Anderson and Meyer, L975) contend that demographic factors are not of much import in explaining human communication behavior. On the other hand, some other researchers have shown that demographic characteristics are important predictors of communication behavior (Kline, 1971; McGuire, 1976). Rogers (1969) found that the "antecedents of mass media exposure" were literacy, education, cosmopolíteness, social status, and age. Bostian (1974) reports that social

status, occupation, literacy, and income are key factors in predicting mass media exposure; and Saxena (1973) and Robinson (1972) report in like manner that education is of prime consideration.

These contradictory findings suggest perhaps that a great deal depends on how one defines demographic characteristics, and that the relationship between demographics and communication behavior may be more crystallized when demographic variables are combined with other kinds of variables to predict human communication behavior. There is empirical evidence that a person's age and educational level, for instance, are closely related with his social-structural, personality, and cognitive characteristics to influence his communication behavior. These are in turn mutually related, and together explain the individual's level of knowledge, motivational orientations, and overt behavior (Karlins and Abelson, 1970; Berelson and Steiner, 1964; Hovland, Janis, and Kelley, 1953; Hovland and Janis, 1959). McNelly (1970) has stated that "the antecedent variables (of communication exposure) tend to be factors such as education, socio-economic status, literacy, age, and family background. The consequent variables often include knowledge, attitudes, . . . motivations regarding modernization, empathy, opinion leadership, and innovativeness." Other researchers (Frey, 1973; Grunig, 1971; Brown, 1970; Lin and Burt, 1975) have reported similar findings. Thus, the variables responsible for steering the process of modernity seem to be interdependent upon one another.

An empirical basis of the two-step flow hypothesis is the observation that people get information from the mass media which enables them subsequently to engage in interpersonal communication (Lazarsfeld, Berelson, and Gaudet, 1948; Katz, 1957), and Chaffee (1972) has argued that one cannot validly study interpersonal communication or mass communication without reference to the other. He even raises the question of mutuality of effects by stating that "mass media content determines . . . what things we will argue or agree about with others. In turn . . . this interpersonal context plays a major role in

shaping the content of the mass media" (p. 95).

But the more frequently observed situation seems to be that "mass media channels are primarily knowledge creators, whereas interpersonal channels are more important at persuading, that is, forming and changing attitudes" (Rogers and Shoemaker, 1971, 207-208; Rogers, 1969, 116). This suggests that, as Klapper (1960) has written, the individual gathers factual information from the mass media and various other sources but actually makes definite decisions only after perhaps checking out the accuracy and authenticity of the information with members of his/her reference group and other individuals in positions to know, and determining the extent to which group norms and values are served or vitiated by the communicated information.

In consideration of this empirical evidence, the hypotheses tested in the present study included the following:

H_1: An individual's degree of mass media exposure is a function of his demographic characteristics, level of fatalism, and group membership. The higher the person's level of fatalism, the less likely he will expose himself to mass media information on economic and social development, regardless of his age, level of education, occupation, level of income, and reference group affiliations.

H_2: An individual's demographic characteristics, his level of fatalism, his group membership, and his degree of mass media exposure will affect the extent to which he discusses with other people news and other information pertaining to economic and social development.

H_3: A person's group membership is to a great extent determined by his demographic characteristics and his level of fatalism.

In reviewing studies on internal-external locus of control, Rotter (1966) and Joe (1971) have reported that social class (defined in terms of education and income), age, and group membership are related to belief in internal or external control. People of high social status are said to be more internally oriented (less fatalistic) than are people of low social status. By the same token, active adults should be more internally oriented than are children and retired people who are no longer capable of active working and social life.

A person's level of fatalism may affect the extent to which he belongs to and participates in the activities of unions and other social, civic, economic, and religious organizations.

Nielsen (1973) states that "from a history of not being able to gain rewards through their own actions, high fatalists (externals) learn to expect that what they might do to attain rewards will not succeed" (p. 338). It follows then that a person whose educational and occupational pursuits have been less than successful may have a higher probability of developing a fatalistic outlook on life than an individual whose own pursuits have been relatively successfu. Internals have been found to more readily perceive the utility of information, to expose themselves more to sources of information, and to be more knowledgeable, than do externals (Wallston, Maides, and Wallston, 1976; Nielsen, 1972; Nielsen and Nielsen, 1974; Rogers, 1969). The fourth hypothesis tested in this study was, therefore, the following:

H_4: Fatalistic orientation to information and other matters pertaining to economic and social development, as well as to reference group affiliations, is influenced by the individual's demographic characteristics, such as age, education, occupation, and level of income.

The growing literature on the agenda-setting function of the mass media indicates that where the media focus attention on certain issues of public concern, the tendency has been for such issues to be made salient among members of the general public, and thus for people to perceive the issues as important (Ellul, 1973; McCombs and Shaw, 1972, 1974). In like manner, constant discussion of an issue with members of one's reference groups and with other people often tends to crystallize the issue (Klapper, 1960). Either constant exposure to mass communication and to interpersonal communication on an issue creates interest in the issue or an existing interest is heightened and reinforced by exposure, more particularly where the issue in question relates to one's means of livelihood.

Also, a person's age, education, occupation, level of income, and reference

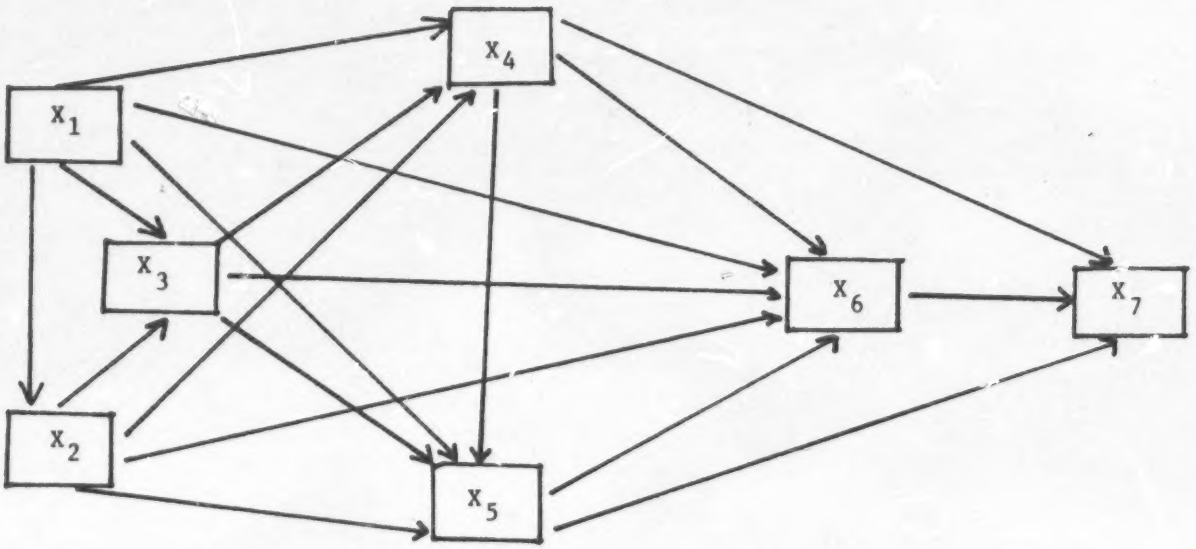
group affiliations should to some extent influence his perception of the importance of a development program under discussion. His level of fatalism should likewise contribute to this perception, especially to the extent that the importance-perception is predicated upon present and/or potential benefits thought to accrue from the object of development. Again, this proposition derives from Rotter's social learning theory which states that reinforcement value is influenced by internal-external locus of control (Rotter, Chance, and Phares, 1972). Thus, the fifth hypothesis tested was:

H_5: Perceived importance of coal as an object of economic and social development is a function of the individual's exposure to mass and interpersonal communication pertaining to that issue, as well as of his demographic characteristics, level of fatalism, and group membership.

In turn, perceived importance of a subject matter of discourse should, with exposure to mass and interpersonal communication, influence directly an individual's orientation toward change--or nonchange--pertaining to that subject. Hansen (1972) has stated that a person's "orienting behavior" is to a large extent influenced by the importance which he attaches to cues encountered in his day-to-day activities. In their study of the process of individual modernization in Argentina, Bangladesh, Chile, India, Israel, and Nigeria, Inkeles and Smith (1974) report that mass media exposure, education, and the factory experience were the three most important determinants of individual modernity. The sixth and final hypothesis was thus this:

H_6: Orientation to change is directly influenced by mass media exposure, interpersonal communication, and the perceived importance of the object of change.

In sum, the composite variable "demographic characteristics" is the only variable stated to affect but is not affected by any of the other variables in the study, while orientation to change is hypothesized to be the ultimate dependent variable. In terms of the structure of the variables' relationships also (Figure 1), the level of fatalism which the individual manifests is influenced only by his demographic characteristics, since most of these



X_1 Demographic characteristics
X_2 Fatalism
X_3 Group membership
X_4 Mass media exposure
X_5 Interpersonal communication
X_6 Perceived importance
X_7 Orientation to change

Figure 1: PATH DIAGRAM OF THE HYPOTHESIZED RELATIONSHIPS AMONG THE VARIABLES

characteristics play an important role in the development and socialization of the individual. Other than as an endogenous variable in its relationship with demographic characteristics, fatalism is hypothesized to influence all the other variables in the system, including orientation to change which it influences indirectly.

DEFINITIONS

Demographic Characteristics is a composite variable made up of age, education, occupation, and income. The index of education included response to questionnaire items concerning the highest level of formal schooling attained by the respondent at the time of the interview, ranging from grade school to doctoral degree, medical and law degrees, and pharmacy diploma. This education included respondent's own schooling as well as that of the head of the

household, where the head of the household was someone other than the respondent. Occupation included respondent's own regular employment at the time of the interview and that of the head of the household where the latter was someone other than the respondent. Income was measured by respondent's "last year's total income," that is, cash earnings.

Fatalism: Rogers (1962) has defined fatalism as "the degree to which an individual recognizes a lack of ability to control his future" (p. 32), and Nielsen (1973) defines it as "the degree to which an individual believes that events affecting his life are largely determined by external forces rather than by his own efforts" (p. 337). Thus, the concept of fatalism as used in communication research is equivalent to the construct of internal-external locus of control as used in the social psychological literature within the framework of Rotter's (1954, 1966) social learning theory of personality. The variable was measured in this study with eight Likert-type questionnaire items eliciting seven response categories of from "disagree very strongly" to "agree very strongly" to statements expressing beliefs in and feelings about matters affecting one's life situation in general and with respect to the community and the subject matter of this study. The instrument was adapted from Rotter's I-E Scale and scored in the external direction.

Group Membership is a person's stated affiliation with or participation in the activities of a civic, religious, or community club or organization, including stated names of such clubs or organizations.

Mass Media Exposure was measured by a person's stated access and attention to the media of mass communication. Respondents answered "yes" or "no" to questions as to whether they read newspapers, said whether "during the past month" they read anything about the object of development in the community. They also specified the names of papers read, stated the kinds of things they read in the papers about the object, and said whether "in the future" they might read or watch news stories about the object of development (coal

gasification plant).

Interpersonal Communication: This is face-to-face discussion between two or more people. It was assessed by respondents' reported discussion with friends and/or family of things going on in the community and in the region, a listing of things talked about, indication of whether "during the past month" certain potential changes in the community were discussed, and the stated likelihood of the object of development being discussed in the future.

Perceived Importance: Perceived importance was measured with one questionnaire item asking respondents to indicate how important they thought the coal industry was to them personally, and another item asking them to say how important they thought that coal mining was to the community generally. There were five response categories for each of the two questions, the response categories ranging from "not at all important" (1 point) to "very important" (5 points).

Orientation to Change: This was measured with a questionnaire item asking respondents to state whether or not they expected any changes in the community due to the proposed coal conversion plant, an item asking them to list three of such potential changes, three items asking them to state specifically the ways in which they thought the changes might affect the community, and four Likert-type items containing statements of the various ways in which the proposed coal conversion plant might bring about changes, with the seven response categories of the items ranging from "strongly agree" to "strongly disagree." Orientation to change is, therefore, defined as the individual's disposition or attitude toward economic and social change.

METHOD

The data were collected in a field survey from a randomly selected sample of 159 adult residents of New Athens, a small rural community of 2,000

inhabitants[1] situated about 30 miles southeast of St. Louis. The data collection was made in May 1976, six months after it was announced by the federal government that what was to be the nation's largest coal gasification plant would be built near the village. The proposed $237 million plant was meant to convert high sulphur coal to clean burning oil and natural gas, using 2,700 tons of coal mined in surrounding areas to produce 22 million cubic feet of gas and 3,200 barrels of oil daily.[2]

To federal, state, and local officials alike, the siting of the coal gasification plant at New Athens would mean an unprecedented boon for the "sleepy little town" whose only industry of any consequence is coal mining. Everyone of the officials who commented on the announcement made sure that he laced his comments with a long list of changes which he believed the presence of the plant would bring to the community, such as: a doubling of the population, over 1,000 new jobs, more shopping and eating places, more recreational facilities, more and expanded schools, more and better roads, and better street lighting. Coming as it did at the height of the energy crisis, the announcement stirred up a great deal of excitement among officials and residents alike, for the proposed project was seen as a major means of resolving the crisis.

The mass media gave sustained play to the news story within the first few days following the announcement, and many newspapers carried editorials further playing up the perceived possible changes which the project would bring about in the community and the nearby areas. The village has a weekly newspaper--New Athens Journal Press-- and is served by at least seven other weeklies and dailies published in nearby Belleville and St. Louis. It has no radio or television station of its own, but is well served by several stations in communities nearby. So, there was a high probability that the villagers reasonably exposed themselves to the news media accounts of the event. It was also possible that the announcement generated a good deal of discussions in

public and private places.

The data were collected with a questionnaire containing forced-choice and open-ended items as described in the preceding section. Except for age and income each of which were measured with single questionnaire items, respondents' scores were summed up for each variable to obtain an index of that variable. The scoring of three of the Likert-type items for fatalism which were framed in a positive form or internal direction was reversed so that a "disagree very strongly" response was scored 7 and "agree very strongly" was assigned a value of 1 (since the fatalism scale is usually scored in the external direction). Similarly, the scoring of orientation to change questionnaire items framed in a negative form was reversed so that an "agree very strongly" response to such an item received a score of 1, while a "disagree very strongly" response was scored 7.

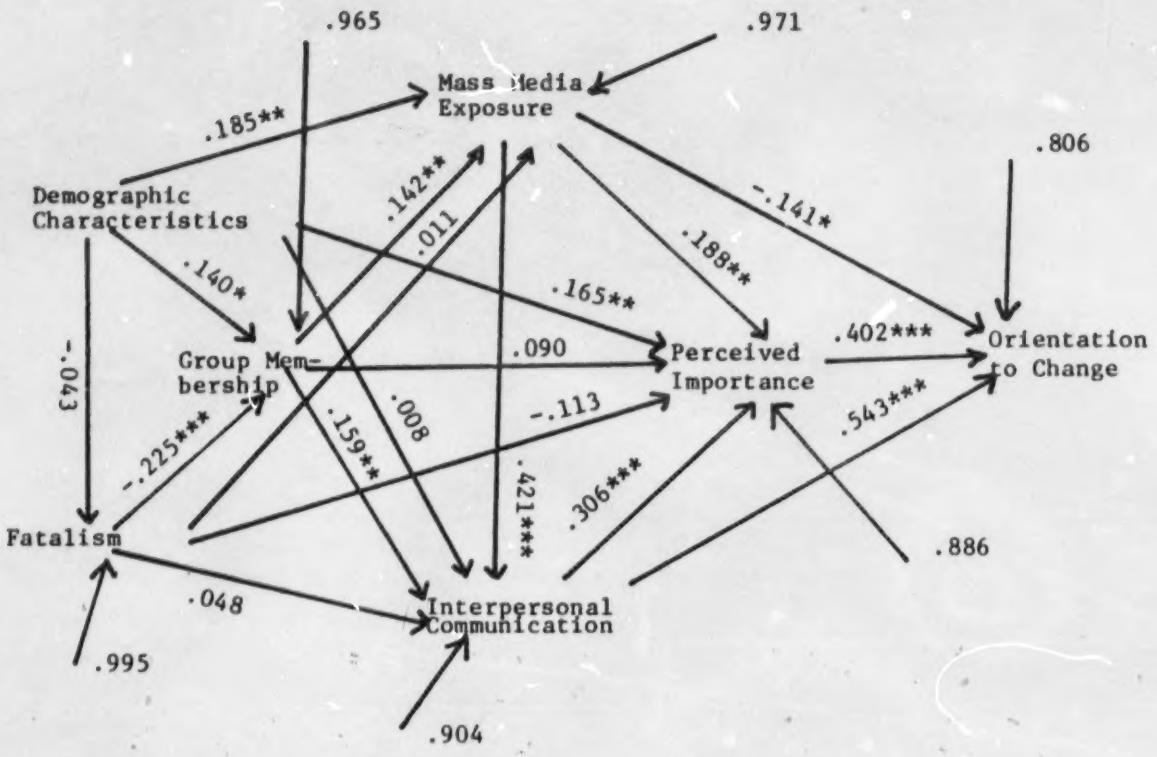
In order to undertake a path analytic interpretation of the data, hierarchical multiple regression programs were run. But before doing that, the data were standardized through tranformation to Z scores with the formula: $Z = (X_1 - \bar{X})/s$, where s is the standard deviation of score X_1. Six separate regression equations were run with these standardized data in order to obtain the initial estimates of path coefficients. Assumptions[3] pertaining to the relations among the variables in the path model were those of linearity, additivity, and one-way causal flow. Also, the residuals were assumed to be uncorrelated among themselves and with variables in the model. With these assumptions, partial regression coefficients obtained from the analyses were used as estimates of the path coefficients (Kerlinger and Pedhazur, 1973; Duncan, 1966; Goldberger, 1970). Since the data were collected with different scales and scored differently, standardized coefficients rather than the unstandardized ones were used in the estimates, in the interest of the proper comparability of observed effects (Wright, 1960; Heise, 1969; Kim and Kohout,

1975). The Klemmack, Leggette, and Mayer (1975) method was used to adjust for any biases which might have resulted from the initial estimation of the path coefficients. Essentially, this involved dividing each of the path coefficient estimates by the residual term of the corresponding endogenous variable to arrive at the final coefficient reported here.

RESULTS

The general results of the analyses are presented in Figure 2. While demographic characteristics exerts relatively strong and significant effects on mass media exposure, group membership, and perceived importance, it exerts little to none on fatalism and interpersonal communication. Its effect on fatalism is negative and at best minimal, thus leading to the interpretation that to the extent that fatalism as a personality variable is modifiable by experience, the individual's demographic characteristics plays a negligible role in that modification process. In this respect, Hypothesis 4 has not been supported, for, considered in terms either of variance accounted for (less than 1 per cent) or of meaningfulness of the path coefficient (less than the .05 meaningfulness criterion[4]) the influence of demographics on fatalism is as good as zero. The same situation applies with even more force with respect to its influence on interpersonal communication.

It is interesting to note that the indirect influence of demographics on interpersonal communication via group membership (.140 x .159 = .022) is greater than its direct influence (.008), and via mass media exposure that indirect influence is even meaningful (.185 x .421 = .078). These results indicate that knowing one's demographic characteristics is not enough to predict whether he will discuss with other people matters concerning the coal conversion plant. The groups to which the person belongs need to be known also, as is the extent to which he exposes himself to mass media contents



*p < .05
**p < .01
***p < .001

Figure 2: FINAL ESTIMATES OF PATH COEFFICIENTS

pertaining to the coal plant.

The effects of fatalism are all meaningful, except for the path leading to mass media exposure whose coefficient, even though positive, is rather minimal. Its relatively strong but negative effect on group membership combines with the influence of demographic characteristics on group membership to lend support to Hypothesis 3, which states that "a person's group membership is to a great extent determined by his demographic characteristics and his level of fatalism," even though both variables accounted for only 7 per cent of the variance in group membership. Thus, despite the significant effects of fatalism and demographics, many other factors not taken account of

in this study also contribute to the determination of reference group affiliation.

Hypothesis 1 states that the individual's degree of mass media exposure is a function of his demographic characteristics, level of fatalism, and group membership. But the results lend only partial support to that hypothesis, for, even though two of the three paths leading to mass media exposure have significant coefficients, the coefficient of the path from fatalism to mass media exposure is almost zero, thus, signifying virtually no direct effect by fatalism. The coefficient of the path from group membership (.159) and that of the path from mass media exposure (.421) to interpersonal communication are significant beyond the 1 per cent level of probability. However, the effect of demographic characteristics on interpersonal communication is virtually zero. Thus, Hypothesis 2 is lent only partial support.

Hypothesis 5, which states that perceived importance is influenced by demographic characteristics, fatalism, group membership, mass media exposure, and interpersonal communication, is retained, for all the path coefficients defining the influences of these variables are meaningful. Three of the five coefficients are relatively highly significant, and the five variables together account for 22 per cent of the variance in perceived importance.

Finally, the direct causal influences of mass media exposure, interpersonal communication, and perceived importance on orientation to change are all significant, and the three predictor variables account for 35 per cent of the variance in orientation to change. Hypothesis 6 is, therefore, retained. However, a great deal of the impact of mass media exposure on orientation to change is indirect through interpersonal communication and perceived importance rather than direct. In fact, the sign of the coefficient on the mass media -to-orientation to change path suggests that merely exposing oneself to mass media contents pertaining to the coal plant without perhaps discussing the project with other people leads one to be opposed to

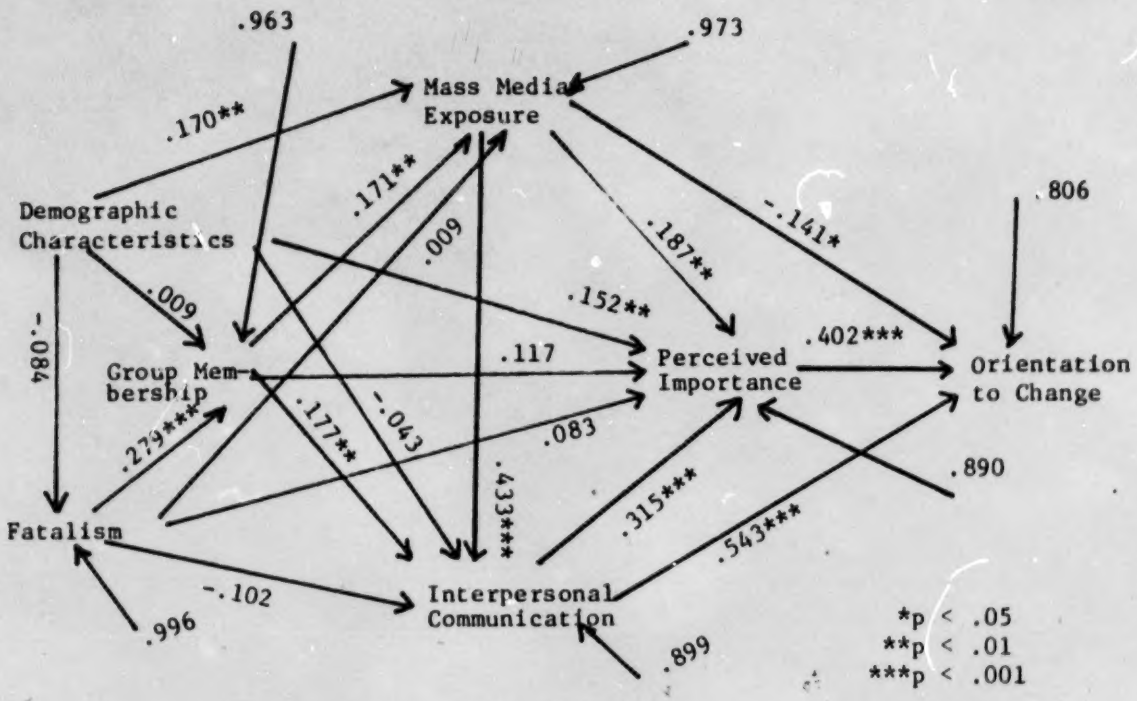


Figure 3: PATH COEFFICIENTS IN "HIGH" DEMOGRAPHICS/"LOW" FATALISM SITUATION

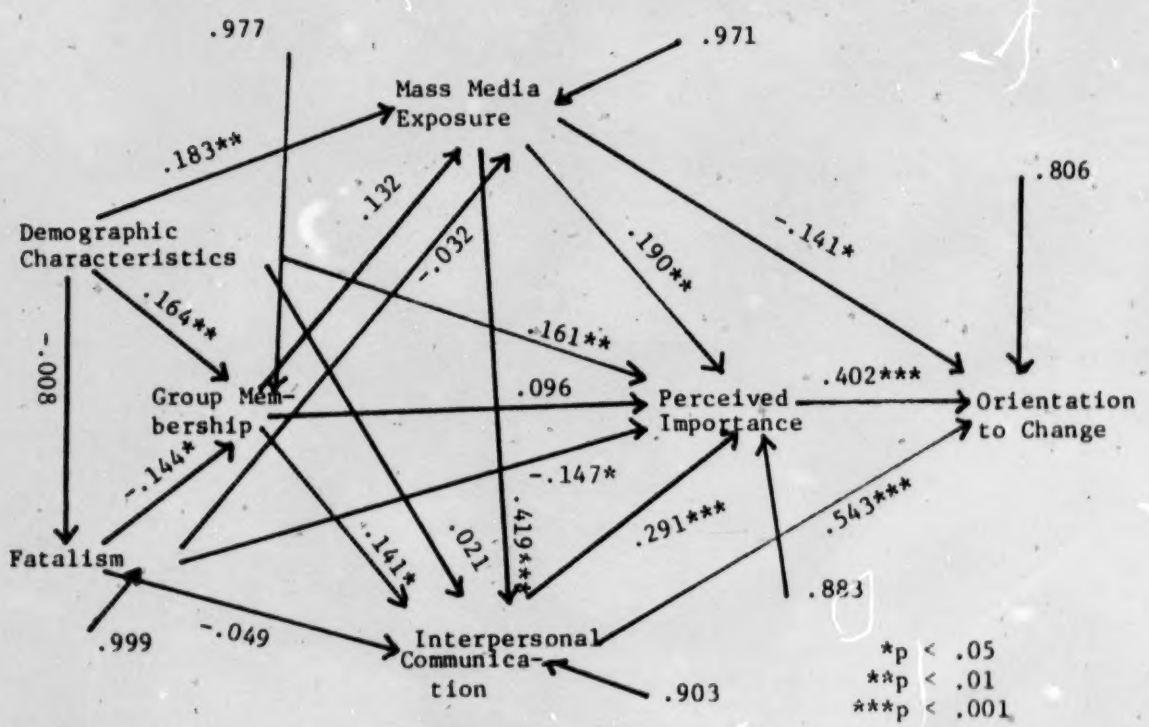


Figure 4: PATH COEFFICIENTS IN "LOW" DEMOGRAPHICS/"HIGH" FATALISM SITUATION

changes which the proposed project might necessitate.

The patterns of the observed effects changed dramatically when the data were analyzed in terms of a categorization of demographic characteristics and fatalism into two levels each. With respect to demographic characteristics, ages 25 and below, educational levels of "some college" and over, occupational grades of manager and over (with their various equivalents[5]), and annual incomes of $10,001 and over defined "High Demographic Characteristics," while "Low Demographic Characteristics" was defined by ages 26 and over, educational levels of high school and below, occupational grades of supervisor and below (with their corresponding titles in various fields), and annual incomes of $10,000 and lower. "High Fatalism" was defined by total scores on the fatalism scale of 40-56, while scores of 8-24 constituted "Low Fatalism."

High demographic characteristics and low fatalism were combined with the other variables in the model to run another set of six separate hierarchical multiple regression programs, with the estimated coefficients presented in Figure 3. With high fatalism and low demographic characteristics combined with the other variables in the model, another set of hierarchical regressions was run to obtain the path coefficient estimates presented in Figure 4.

Categorization was necessitated by Hypothesis 1, and by the need to search for a possible finer fit of the data to the model. In doing this, it was felt that the two combinations of the levels of demographics and fatalism used here were the ones which would provide the greatest degree of disparity of effects and so only these two rather than the whole four ($2 \times 2 = 4$) combinations were examined.

Categorization affected all of the path coefficient estimates in Figures 3 and 4, except for the direct effects of mass media exposure, interpersonal communication, and perceived importance on orientation to change. The reason for the changes was mainly two-fold: first, the substantive effects of the

different levels of demographics and fatalism, and secondly, the usual changes in regression coefficients when there is even a slight change in any one of the variables in a regression equation (Kerlinger and Pedhazur, 1973; Kim and Kohout, 1975; Gordon, 1968).

However, the greatest changes occasioned by dichotomization are to be observed in the effects of the two dichotomized variables on group membership. Whereas prior to dichotomization, demographics effect on group membership was relatively substantial and significant, it fell to almost zero when high demographics was combined with low fatalism to predict to group membership (Figure 3), indicating little or no reference group affiliation by people with high demographic characteristics. With respect to fatalism, while its effect on group membership was strong and negative before dichotomization, that effect became positive and quite stronger when low fatalism was combined with high demographics to predict to group membership (Figure 3). In other words, low fatalists join reference groups but not necessarily because they are of high social status but simply because they are low in fatalism, no matter their social status. On the other hand, a person is likely to be affiliated with a reference group when he is of low social status, but under such a condition, a high level of fatalism is significantly antithetical to this affiliation. The changes and stabilities observed following dichotomization were of course reflective of the correlations among the variables (Tables 1 and 2) which either changed or remained stable depending upon whether one or both

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TABLES 1 AND 2 ABOUT HERE

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of the correlated variables were altered by dichotomization or none of them was affected.

Despite the glaring changes noted, a number of other effects were only

slightly altered by dichotomization. These were: the effects of demographics on fatalism, mass media exposure, interpersonal communication, and perceived importance; of fatalism on mass media exposure, interpersonal communication, and perceived importance; of group membership on mass media exposure, interpersonal communication, and perceived importance; of mass media exposure on interpersonal communication and perceived importance; and of interpersonal communication on perceived importance. In other words, the greatest impacts of dichotomization were on group membership. Also, dichotomization gives a clearer picture of the effects of demographics and fatalism than does the continuous form of these variables.

DISCUSSION

Whether as a continuous or categorical variable, demographic characteristics has proven to be a relatively good predictor of mass media exposure and perceived importance, and to some extent also of group membership. Its impacts on mass media exposure and group membership are consistent with findings in previous research (McNelly, 1970; Rogers, 1969; Bostian, 1974), and the relative stability of its effect on perceived importance regardless of dichotomization and also without regard to one's group membership and level of fatalism is indicative of the fact that the coal industry affects the life of practically every person in the village covered by this study.

In terms of social learning theory, demographics and group membership appear to serve a good contingent function in the present model as variables representing the psychological situations or contexts in which the interviews in the study were conducted. However, the direct influence of demographics on interpersonal communication and of fatalism on mass media exposure are of little consequence, and their respective effects on these two communication variables are indirect through group membership. Thus, group membership

serves as a durable intervening variable in the present model. People discuss with others matters pertaining to the coal gasification plant not because they happen to have certain demographic characteristics and levels of fatalism, but rather because they have certain reference group affiliations which facilitate such interpersonal interaction.

Also, the rather strong influence of mass media exposure on interpersonal communication and the far greater impact of interpersonal communication on orientation to change, as compared to that of mass media exposure on the same orientation to change, are quire consistent with previous research findings. People do not develop favorable attitudes toward social change merely by exposing themselves to the mass media. After exposing themselves to the modernizing contents of the mass media they discuss such contents with other people and subsequently develop their orientation toward change. The mass media appear to act as sources of factual information, the information with which the individual proposes a course of action. With these information and proposal, the individual is motivated to sound the opinions of others, and it is such opinions which finally persuade him to put his proposed action into effect. Orientation to change is also directly determined by perceived importance, which itself is a direct function of exposure to the two communication modes, and, to a lesser extent, of the influences of demographics, fatalism, and group membership.

Thus, the picture which emerges in this study is that of the predominant impacts of mass media exposure and interpersonal communication on the process of individual modernity. This is clearly demonstrated by the relative sizes of the absolute values of the variables' total effects on orientation to change (Table 3) and on perceived importance (Table 4). In each case, the total effects of mass media exposure and interpersonal communication are much larger than that of any of the other variables. Particularly of note is the

TABLES 3 AND 4 ABOUT HERE

fact that this dominant influence of communication remains virtually unaffected by categorization into various levels of the variables antecedent to the two communication modes.

As a personality characteristic, fatalism plays an important role in the process of individual modernity. It influences one's reference group affiliations, the extent to which one exposes oneself to mass and interpersonal communication, and the importance which one attaches to an object of change. People high in fatalism tend not to establish and maintain reference group affiliations, since, as described by social learning theory, they are usually overly more suspicious of other people's motives and intentions than are low fatalists. Also, high fatalists perceive the coal industry to be unimportant to either themselves or the community as a whole. Low fatalists, on the other hand, maintain strong reference group affiliations and perceive the importance of coal as an object of change for their own well-being and that of the community at large.

Nevertheless, the impacts of fatalism are mediated by a number of intervening variables, including, quite remarkably so in the present study, group membership. Knowledge of a person's level of fatalism is not by itself sufficient to predict the person's degree of individual modernity. Information is needed on the person's demographic characteristics, group membership, patterns of exposure to the mass media and to interpersonal communication, and the degree of importance which he or she attaches to the object of change. In fact, without knowledge of these communication exposure patterns and of the degree of perceived importance of the object of change, prediction would be considerably less clearcut.

In terms of social learning theory, this situation is equivalent to that discussed by Rotter (1975) in which reinforcements, and not internal and external locus of control, are conceptualized to be the more crucial determinants of behavior. Rotter has stressed that an optimum prediction of behavior requires the combination of such reinforcements, locus of control, and other relevant variables in the prediction equation.

Thus, in a rural community within a highly developed country, the variables which determine the individual's level of modernity are the same ones which account for individual modernity in the less developed countries. For the individual villager in the present study, the direct determinants of modernity are mass media exposure, interpersonal communication, and the importance which the person attaches to the object of change. These variables are aided by the person's demographic characteristics, level of fatalism, and reference group affiliations. These findings are consistent with those continually reported in studies conducted in the far-flung villages of the less developed countries of Africa, Asia, and Latin America.

Whereas earlier studies of modernity in the third world attributed much of the perceived slow pace of development to fatalistic orientation of the peasantry (Lerner, 1958; Rogers, 1969), the more recent studies in those areas now indicate that other variables are more crucial than fatalism. Brown (1970) reports that while fatalism (or absence of it) played a role in agricultural innovativeness among his Chilean respondents, "institutional and situational factors," including communication, were found to be more important. In his study of modern economic decision-making processes among Colombian peasants, Grunig (1971) also found that social structural constraints rather than fatalism and other personal characteristics of the individual were responsible for the observed tardy pace of modernization. In his view, such constraints as structural rigidities in the political system were able to

successfully frustrate modernization efforts because they made effective flow of communication impossible. Roling, Ascroft, and Chege (1976) have reported similar findings in Kenya.

But as is also the case in studies in the less developed countries, the fact that as much as 65 per cent of the variance in orientation to change remains to be accounted for indicates that more of the variables responsible for the modernity syndrome need to be isolated and studied. It may be that, as a number of investigators (Rogers, 1976; Beltran, 1976; Ball-Rokeach and DeFleur, 1976) have suggested, communication research has for long overly concentrated on the individual, and that more attention needs to be paid to the total society of which the individual forms a part. For the time being, the findings reported here suggest that much as geographic, political, economic, and cultural differences may have their effects, they do not constitute impenetrable barriers to the generality of the roles which communication, fatalism, and other key predictor variables play in the process of individual modernization.

Table 1

CORRELATION* MATRIX FOR THE VARIABLES IN THE PATH MODEL BEFORE DICHOTOMIZATION OF DEMOGRAPHICS AND FATALISM

	X_2	X_3	X_4	X_5	X_6	X_7
X_1	-.04	.14	.20	.10	.22	.08
X_2		-.22	-.03	-.00	-.13	-.00
X_3			.16	.20	.20	.15
X_4				.40	.32	.17
X_5					.37	.51
X_6						.45

X_1 Demographic characteristics
X_2 Fatalism
X_3 Group membership
X_4 Mass media exposure
X_5 Interpersonal communication
X_6 Perceived importance
X_7 Orientation to Change

*.14 = $p < .05$
.18 = $p < .01$

Table 2

CORRELATION* MATRIX FOR THE VARIABLES IN THE PATH MODEL AFTER DICHOTOMIZATION OF DEMOGRAPHICS AND FATALISM. (UPPER HALF OF THE MATRIX CONTAINS CORRELATIONS OF THE VARIABLES WITH "HIGH DEMOGRAPHICS"/"LOW FATALISM," WHILE THE LOWER HALF CONTAINS SUCH CORRELATION COEFFICIENTS WITH "LOW DEMOGRAPHICS"/"HIGH FATALISM")

	X_1	X_2	X_3	X_4	X_5	X_6	X_7
X_1		-.08	-.01	.16	.03	.16	-.01
X_2	-.01		.27	.04	-.03	.09	-.06
X_3	.16	.14		.16	.20	.20	.15
X_4	.20	-.15	.16		.40	.32	.17
X_5	.12	-.08	.20	.40		.37	.51
X_6	.22	-.17	.20	.32	.37		.45
X_7	.10	-.06	.15	.17	.51	.45	

*.14 = $p < .05$
.18 = $p < .01$

Table 3

PATH COEFFICIENTS OF TOTAL EFFECTS*
ON ORIENTATION TO CHANGE

Demographic characteristics	.197
Fatalism	.131
Group membership	.212
Mass media exposure	.498
Interpersonal communication	.666
Importance	.402

*The figures here are absolute values

Table 4

PATH COEFFICIENTS OF TOTAL EFFECTS*
ON PERCEIVED IMPORTANCE

Demographic characteristics	.260
Fatalism	.172
Group membership	.184
Mass media exposure	.317
Interpersonal communication	.306

*The figures here are absolute values

NOTES

[1]The U. S. Census Bureau classifies New Athens as a rural community, since the village's population of 2,000 is below the minimum of 2,500 which the bureau uses in designating a community an urban area or town. See 1970 Census of Population, Vol. 1, Part 15, Illinois, Section 1; "Characteristics of the Population," p. 231. U.S. Department of Commerce, Washington, D.C., April 1973.

[2]St. Louis Globe Democrat, Tuesday, November 18, 1975; Wednesday, November 19, 1975.

[3]The assumption of interval data was not made since the data used in the study did not meet that standard. However, refer to Richard P. Boyle, "Path Analysis and Ordinal Data," American Journal of Sociology, 1970, 75, 461-480, for an extensive discussion of this interval data assumption and a convincing demonstration that path analysis with ordinal data can avoid this assumption with no serious implications for observed results, provided one's scale of measurement is reasonably reliable. Analysis with nominal data has also been discussed by Robert K. Leik, "Causal Models With Nominal and Ordinal Data," in David R. Heise, ed., Sociological Methodology, San Francisco: Jossey-Bass Publishers, 1976, 271-275.

[4]Land's standard which requires that the path coefficient of the effect of one variable on another must be at least .05 for that effect to be regarded as a "meaningful" effect has come to be widely used in the literature as a criterion of meaningfulness. See Kenneth C. Land, "Principles of Path Analysis" in Edgar F. Borgatta, ed., Sociological Methodology, San Francisco: Jossey-Bass, Inc., Publishers, 1969, 3-37; Fred N. Kerlinger and E. J. Pedhazur, Multiple Regression in Behavioral Research, New York: Holt, Rinehart and Winston, Inc., 1973.

[5]The Hollingshead Index was used to classify respondents in terms of their reported demographic characteristics. See August B. Hollingshead, "Two Factor Index of Social Positions." Unpublished manuscript, New Haven, Connecticut, 1965.

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